

Mamiya

REPAIR MANUAL

LENS
(A55•80•150mm N/L)

Catalog No. **20094141**

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5. LENS (A55 mm • 80 mm • 150 mm N/L)

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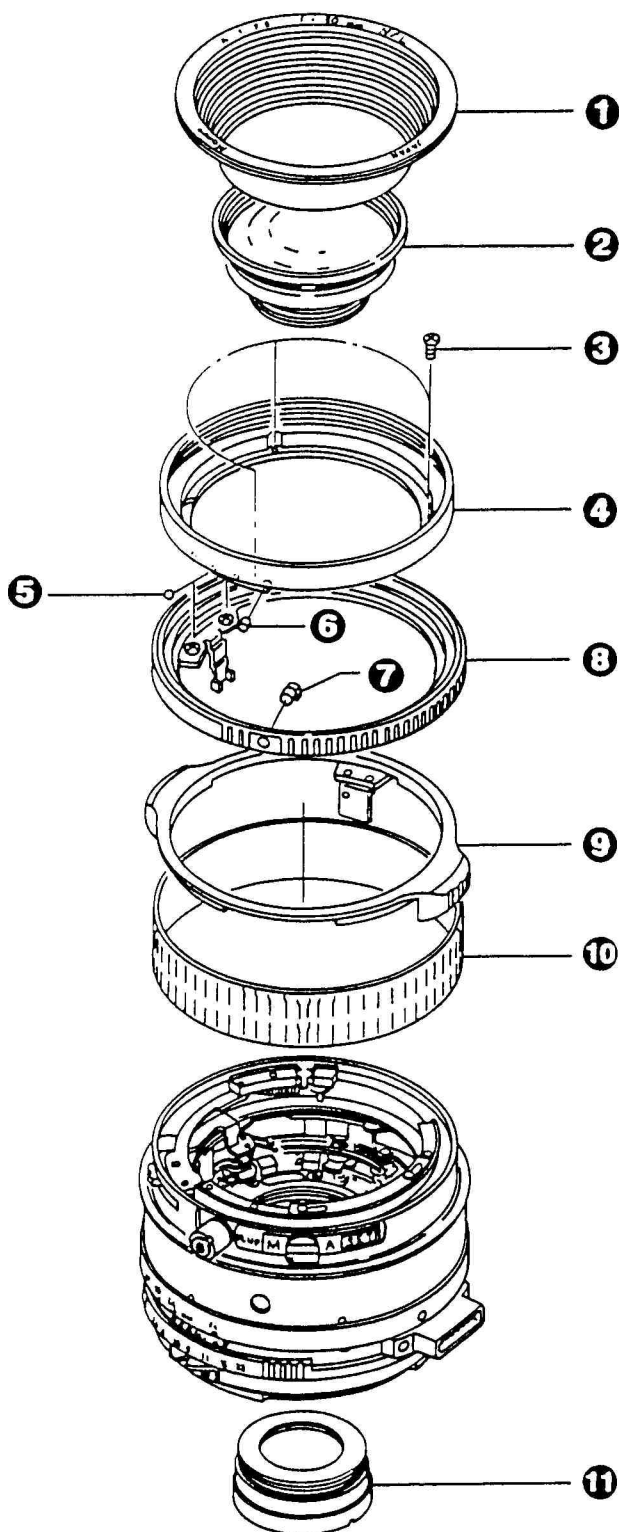


Fig.1

Here, we explain only essential points of disassembly, reassembly, and adjustment.

[A. DISASSEMBLY]

1. Disassemble in the order of numerical figures shown in small circles. (See Fig. 1.)

Note : 1) Disassemble the shutter in the state being charged.

Note : 2) When the front lens ass'y ② is removed, the shutter charge gear or the shutter speed ring ③ comes off. In such a case, disassembly and reassembly work becomes rather difficult. Therefore, it is advisable to fasten temporarily the stop ring ④. (See Fig. 2.)

Note : 3) First, remove the spring ⑤, then remove the rings ④, ⑧, and ⑨. (See Fig. 2.)

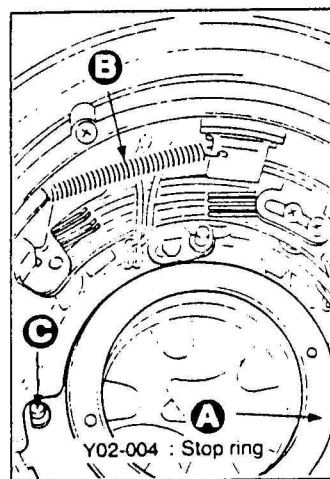


Fig.2

Remarks

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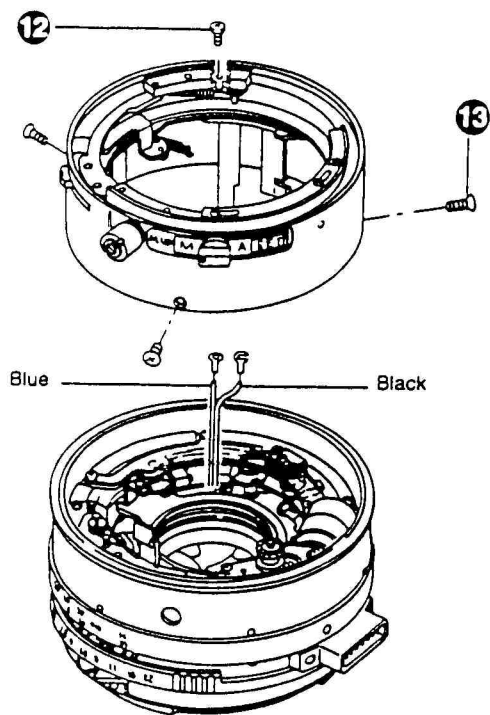


Fig. 3

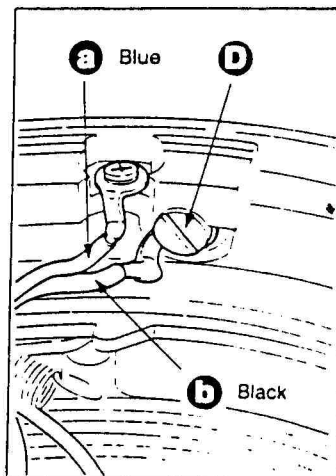


Fig. 4

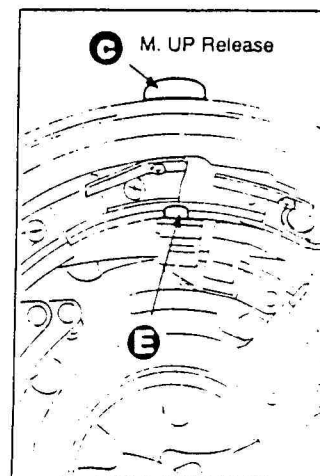


Fig. 5

2. Remove the screw 12, and take out the synchro cord (blue ①). (See Fig. 4.)
3. Loosen (→) screw ① of the synchro-socket and take out the synchro cord (black ②). (See Fig. 4.)

Note : 4) When removing the shutter charge M. ass'y barrel, be careful not to miss the pin ⑤ of M. UP release ③. (See Fig. 5.)

4. Unsolder 8 pcs. of lead wire from the flexible board. (See Fig. 6.)

- ① Yellow
- ② Blue
- ③ Green
- ④ Black
- ⑤ White
- ⑥ Brown
- ⑦ Red
- ⑧ Brown

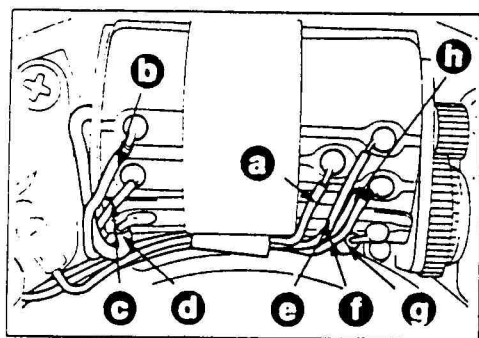


Fig. 6

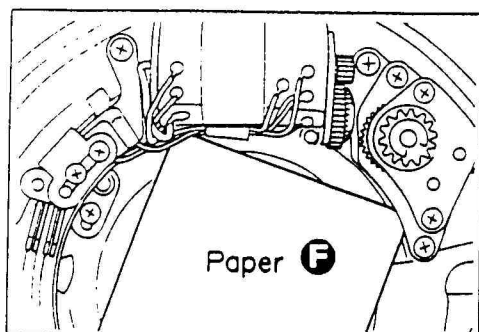
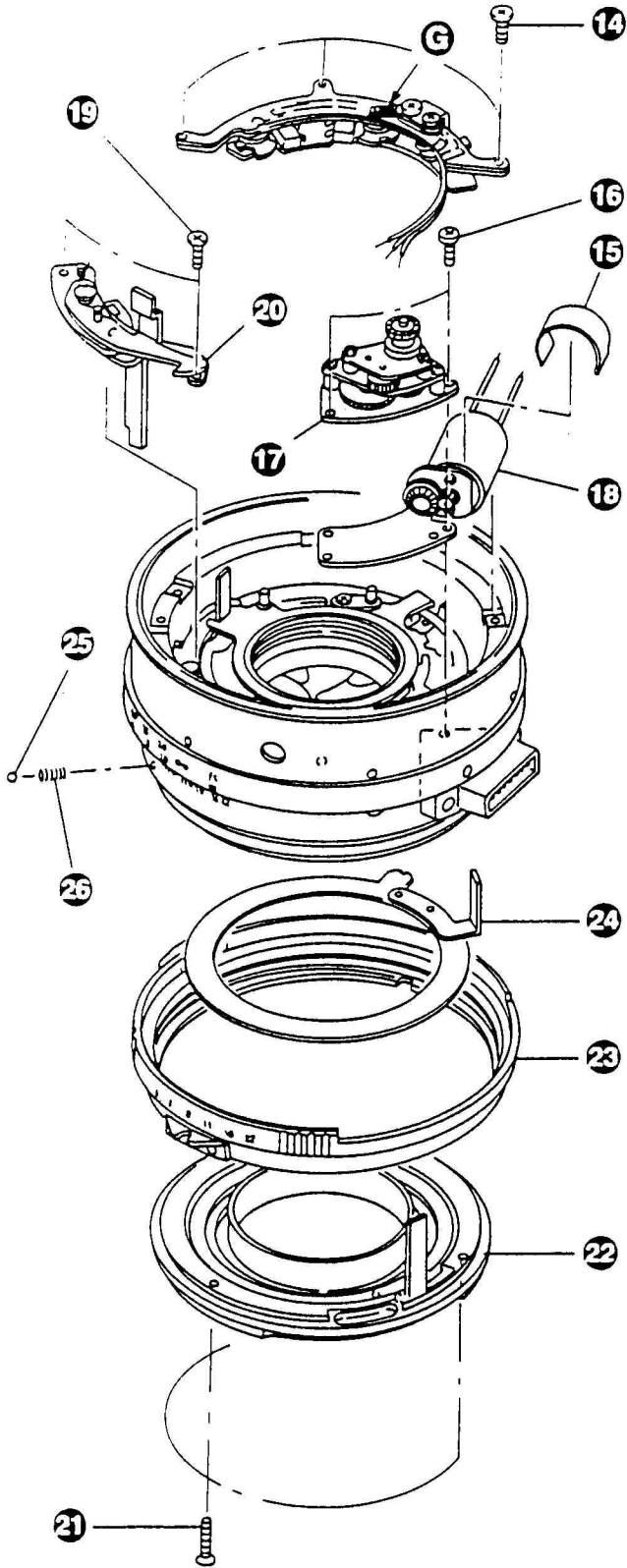


Fig. 7

Note : 1) When unsoldering each lead wire, place a sheet of paper ⑥ on the shutter blades so that the soldering flux will not stick to the shutter blades. Be sure to protect the shutter blades. (See Fig. 7.)

Remarks



Note : 2) When removing the switch substrate, be careful not to bend the contact ⓐ. (See Fig. 8.)

Note : 3) In case of the lens being A150 mm N/L:
When removing the mount ring ②, first turn the rangefinder toward the short range direction, and then remove.

Fig.8

Remarks

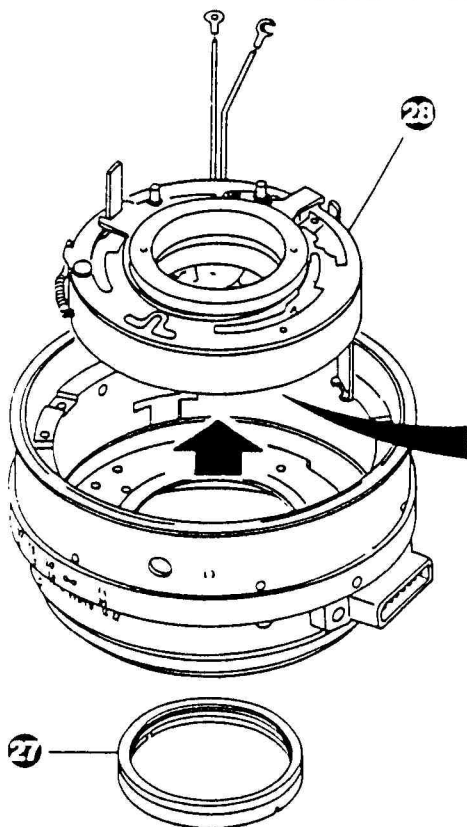


Fig. 9

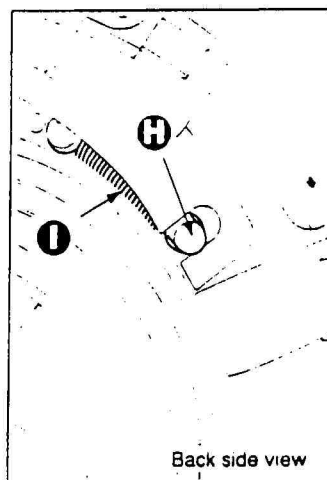


Fig. 10

5. Remove the fixing ring (27), and take out the shutter ass'y (28) upward. (See Fig. 9.)

At this time, pull out the aperture control pin (H), taking care not let the spring (1) expand to its full length, and remove the shutter ass'y (28). (See Fig. 10.)

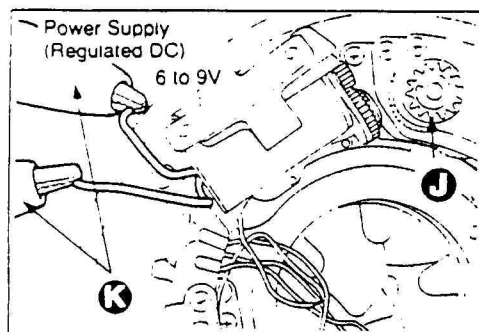


Fig. 11

[B. REASSEMBLY]

1. Reassemble in the reverse order of disassembly.
2. Before assembling the motor and gear train ass'y, revolve the gear (J) with a finger for confirming that all the gears rotate smoothly and then assemble. (See Fig. 11.)

After assembling, let the 6V to 9V electric current flow to the cord (K) of the motor and confirm revolution. (See Fig. 11.)

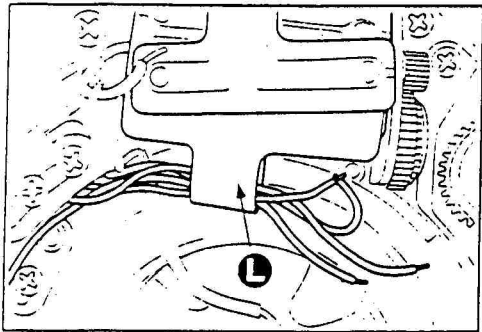


Fig.12

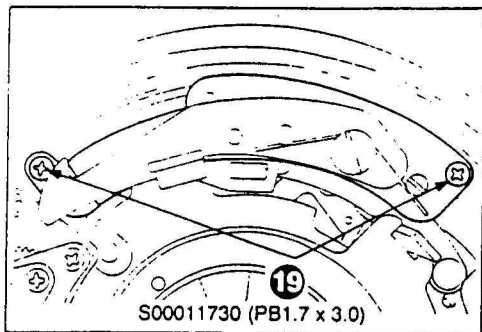


Fig.13

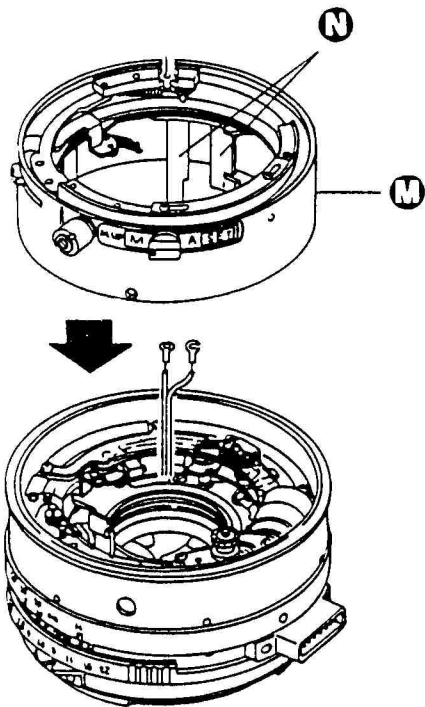


Fig.14

3. Let pass the lead wires, white, yellow, and brown (2 wires) through the flexible board ① and arrange the wires neatly. After that solder the wires. (See Fig. 12.)

4. Screw ⑱ for fastening the A-M switching substrate
Be sure to use the screw S00011730 (PB1.7 × 3.0).
(See Fig. 13.)

(If a screw with a large head is used, the said large head touches to the shutter charge lever, and it is feared that the shutter cannot be charged or released.)

5. The lever ① of the shutter charge. Ass'y Barrel ② must be inserted in the space between the shutter levers ③ and ④.
(See Figs. 14 and 15.)

Note: The shutter must always be assembled in the state of "CHARGE SET".

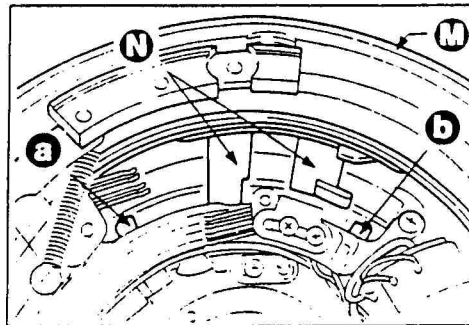


Fig.15

Remarks

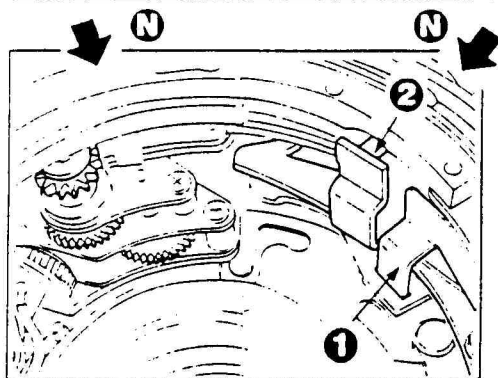


Fig. 16

6. When reassembling the shutter charge M. ass'y barrel, reassemble in the order 1) to 4), while checking the positions to fit each part.

Step 1) Put the A-M switching lever into the groove.
(See Fig. 16.)

Step 2) Put the M-UP socket pin into the inside of the lever.
(See Fig. 16.)

Step 3) Insert the charge gear axis into the bearing.
(See Fig. 17.)

At this time, push the set plate ② into arrow direction, and let the gear teeth ④ of the set plate engage with the charge gear ③, while pressing lightly downward the entire body of the shutter charge M. ass'y barrel ①.
(See Figs. 16, 17 and 18.)

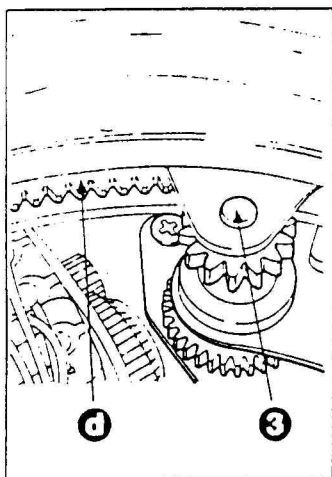


Fig. 17

Step 4) When the lever ④ is pressed in the arrow direction, it will get in the shutter release position. (See Fig. 18.)

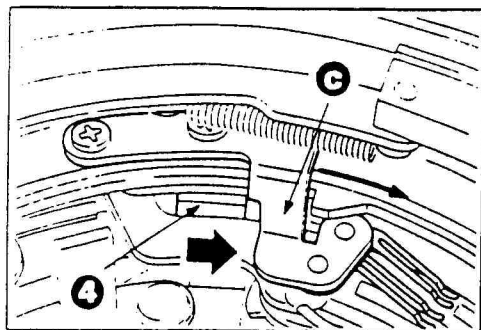


Fig. 18

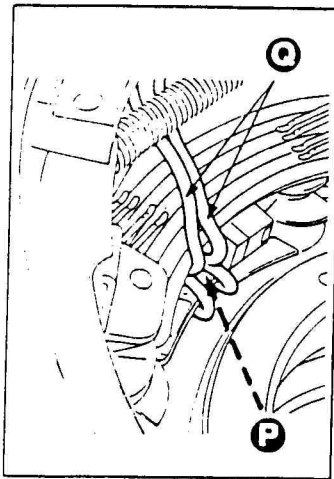


Fig. 19

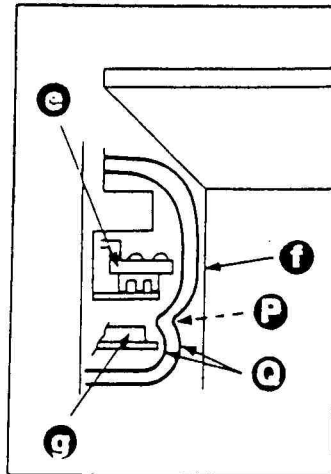


Fig. 20

7. Arrange so that the synchro cord will not touch to the contact ⑥ of the electro-motive set and to the front lens frame ⑦. (See Figs. 19 and 20.)

1) Push the cord ⑥ in the gap of the switch substrate and arrange the length of the cord. (See Fig. 20.)

Note : 1) If the cord ⑥ rounds out, the cord touches to the front lens frame. Therefore, be careful. (See Fig. 20.)

Note : 2) For 150mm lens, special care and attention shall be paid to the space.

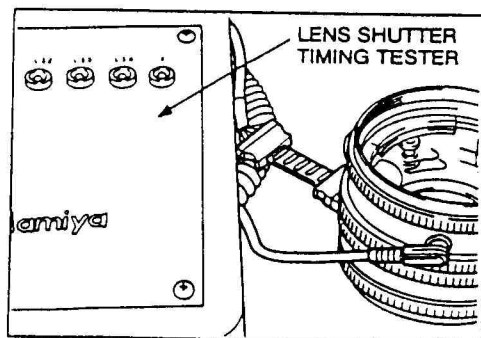


Fig. 21

2) Check electro-motive set with the lens shutter timing tester. (See Fig. 21.)

Note : 2) At this time, confirm that the synchro cord does not touch to the contact point ⑥ of the electro-motive set. (See Fig. 20.)

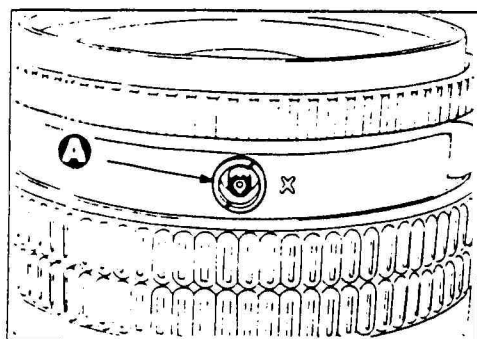


Fig. 1

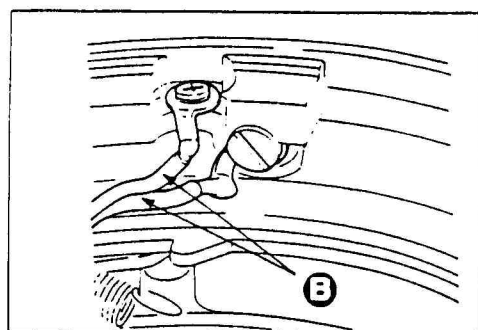


Fig. 2

Note : 1) Before removing the synchro socket (A), be sure to remove first the cord (blue/black) (B). After that remove the synchro terminal (A). (See Figs. 1 and 2.)

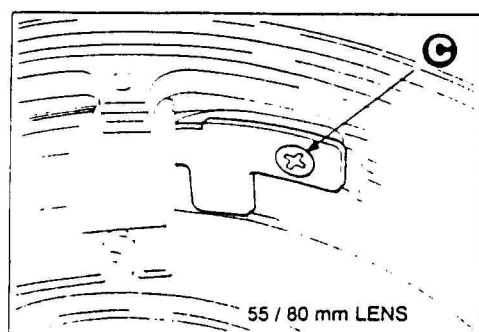


Fig. 3

Note : 2) If the set-screws (C) and (D) of the flexible pressure metal fitting are tightened imperfectly, the aperture lever would hit the set-screws (C) and (D), and the lens would be stopped down. Therefore, these set-screws must be tightened firmly. (See Figs. 3 and 4.)

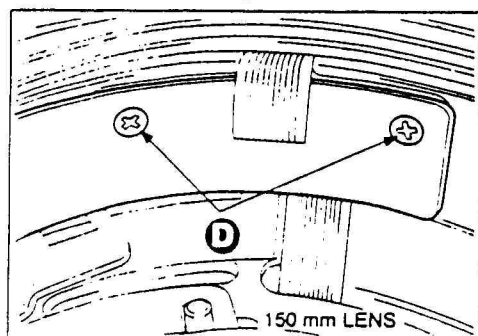


Fig. 4

Remarks

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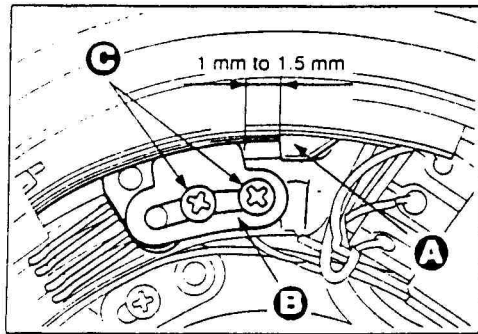


Fig. 1

[A. ADJUSTMENT]

The amount of the shutter charge over-set is that the clearance between the claw (A) of the manual set lever and the switch brush arm (B) shall be 1 mm to 1.5 mm. (See Fig. 1.)

1. First, charge the shutter manually.
2. Loosen the screw (C), slide the switch brush arm (B), and make a temporary adjustment. (See Fig. 1.)
3. Next, repeat shutter charge and release for several times with the electro-motive set, and readjust the clearance.

Note : 1) After adjusting, be sure to apply "Lock Tight" to the screw (C).

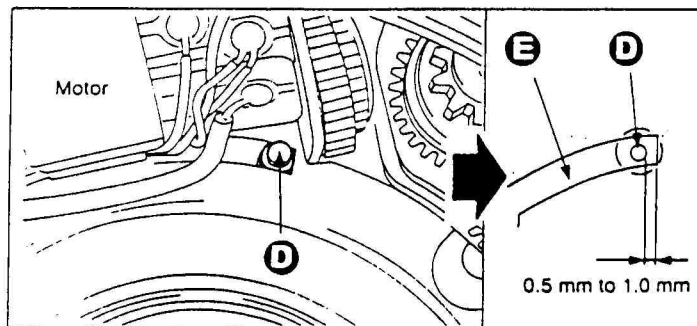


Fig. 2

[A. ADJUSTMENT]

1. Set the shutter speed ring at "500".
2. The clearance between the pin (D) and the shutter speed switchover disk (E) shall be 0.5 mm to 1.0 mm. (See Fig. 2.)

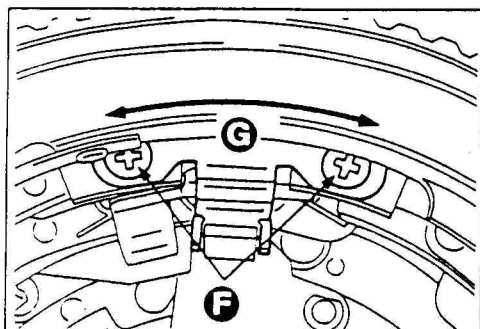


Fig. 3

3. Loosen the screw (F), slide the coupling arm (G), and adjust the clearance. (See Fig. 3.)

Note : 1) After adjusting, be sure to apply "Lock Tight" to the screw (F).

Remarks

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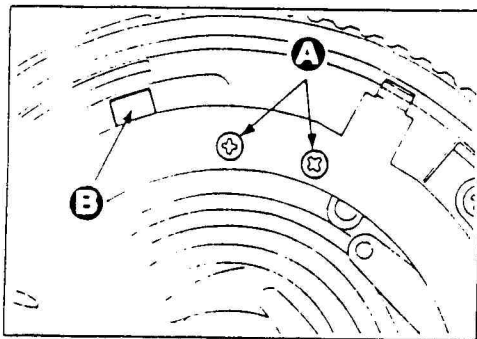


Fig. 1 (55mm/80mm)

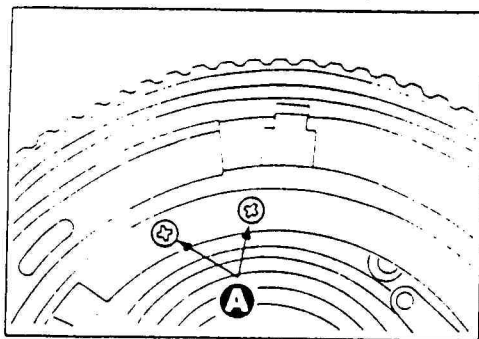


Fig. 1 (150mm)

[A. ADJUSTMENT]

1. Remove the front group of lens, rear group of lens, and the mount.
2. Set the M-A changeover lever at the "M" (manual).
3. Set the aperture ring at the minimum value, and check the aperture diameter.
4. Loosen the screw (A) and slide the lever (B) to adjust. (See Fig. 1.)
5. Set the aperture ring at the values, open aperture, f/8, and minimum, and check the aperture diameter. Readjust, if necessary. (See Fig. 2.)

Note : 1) After adjusting, be sure to apply "Lock Tight" to the screw (A).

Aperture Size

Without lens, Top View

	Maximum Aperture	f / 8	Minimum Aperture
A 55mm F/2.8 N/L			
A 80mm F/2.8 N/L			
A 150mm F/3.5 N/L			

Fig. 2

Remarks

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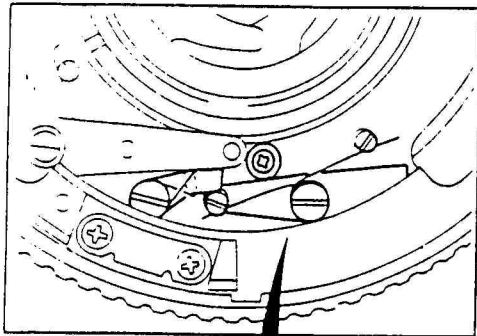


Fig.1

[A. ADJUSTMENT]

When shutter charge is set, the tip (A) of shutter charge lever must catch surely the shutter release latch (B). (See Fig. 1.)

1. Assemble the mount, put the tension gauge (C) to the release lever, and measure the power factor when released.

Shutter must be released at the power factor 110 gf or less. (See Fig. 2.)

2. Loosen the screw (D), turn the eccentric collar (E), and adjust. (See Fig. 1.)

Note : 1) After adjusting, be sure to apply "Lock Tight" to the screw (D).

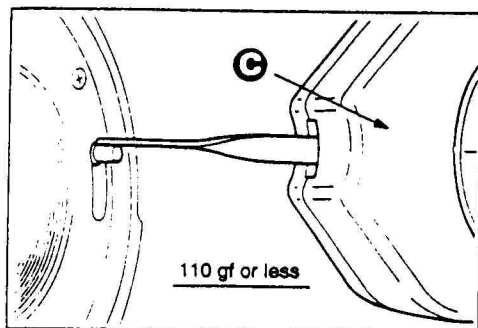
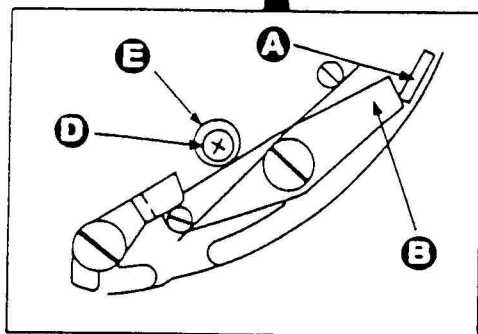


Fig.2

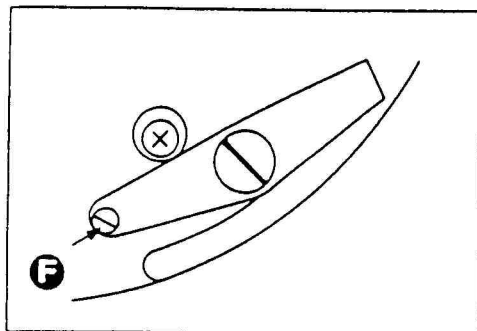


Fig.3

Note : 2) Put the eccentric pin (F) to the position as shown in the illustration and fix up with the adhesive (Prio Bond). (See Fig. 3.)

Remarks

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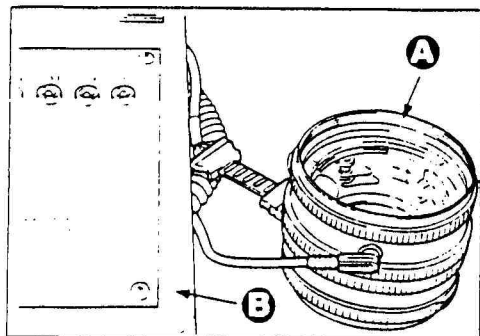


Fig.1

[A. ADJUSTMENT]

1. Charge the shutter of the lens (A) for inspection, and connect to the lens shutter timing tester (B). Set the mode select knob (C) of the tester at "LS". (See Fig. 1.)
2. When the shutter speed ring is changed from "F" position to the lens shutter mode (30 to 500), the LED LS4 (D) lights up. (See Fig. 2.)

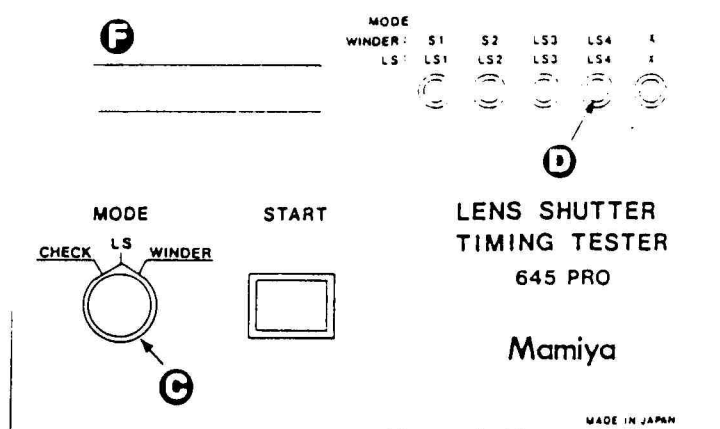


Fig.2

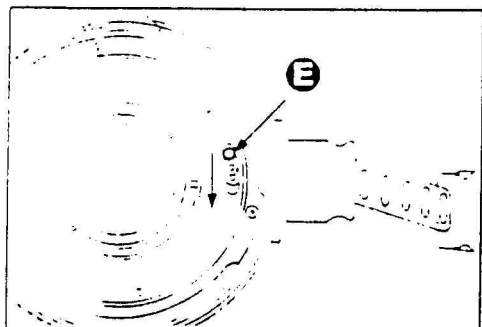


Fig.3

3. Have the lens for inspection set at an optional shutter speed, and release the shutter (E). (See Fig. 3.)
4. At this time, the S3 timing must be $3 \pm 2\text{ms}$ (F). (See Fig. 2.)

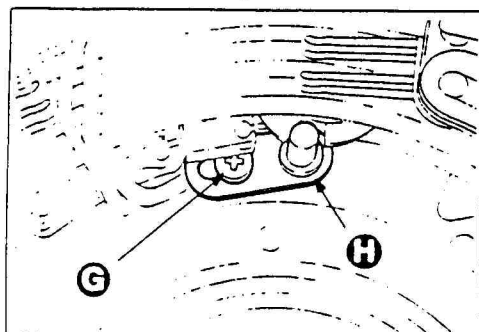
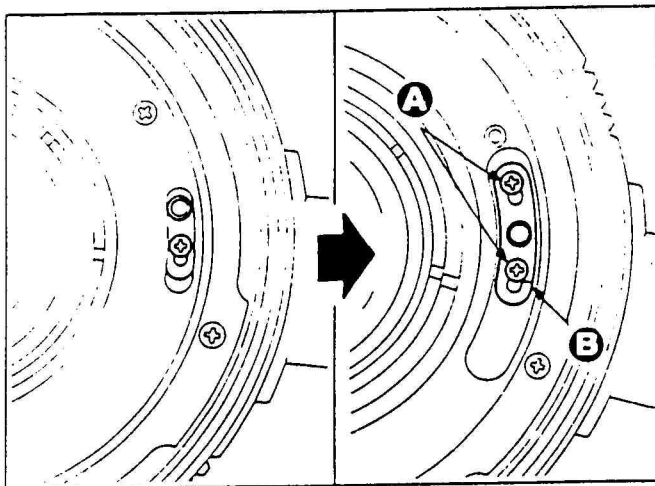


Fig.4

5. Loosen the screw (G), slide the pin lever (H), and adjust. (See Fig. 4.)

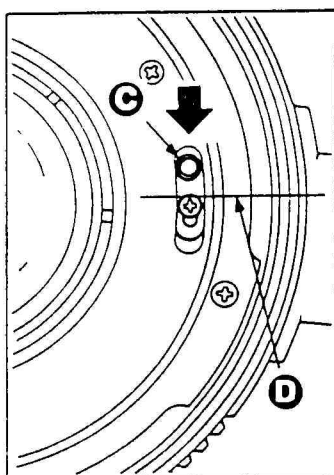
Remarks

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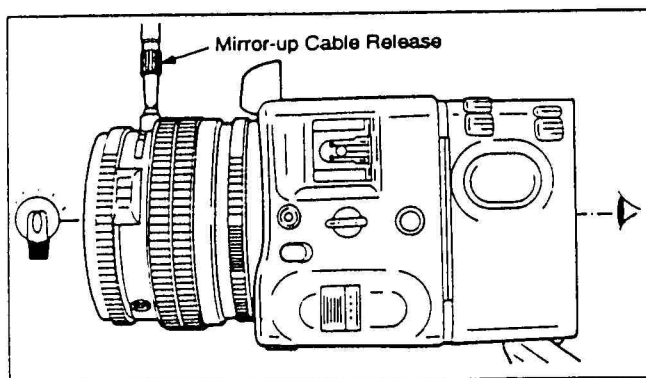
Note : 1) In principle, timing adjustment of shutter release must be executed only in our factory. Therefore, never loosen nor remove the screw ①.

(However, if you are forced to remove the screw when repairing, be sure to put a marking off ② as shown.)



Note : 2) When parts are replaced,

- ① Set the A-M changeover lever at "A", and charge the shutter.
- ② Set the aperture ring at the minimum position.
- ③ Slowly press down the release pin ③, so that the aperture will become the minimum value. Immediately before the shutter releases, the release pin ③ shall become at the position ④ on the line shown in the illustration. Adjustment shall be made thus.



Note : 3) Inspection

- ① Mount the lens on the camera body, set the lens shutter speed at an optional position (30 to 500), and set the lens side at the state "mirror up".
(Body side: Bulb exposure)
- ② Turn the camera body toward the light source, release the shutter on the side of the camera. At this time, peep inside of the camera body and check to see if any light is coming in.

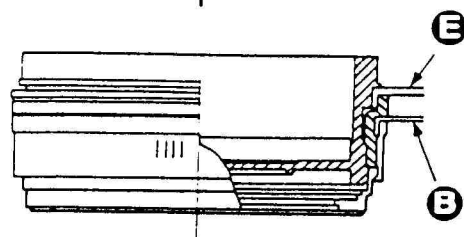
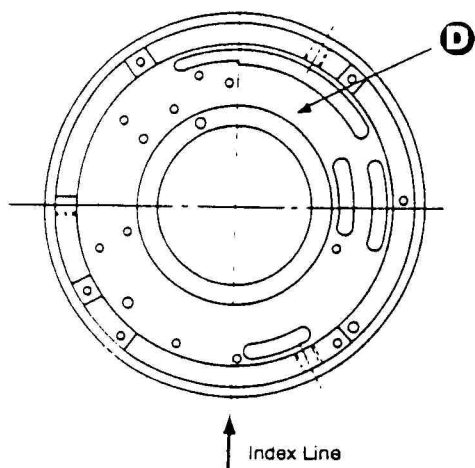


Fig.1

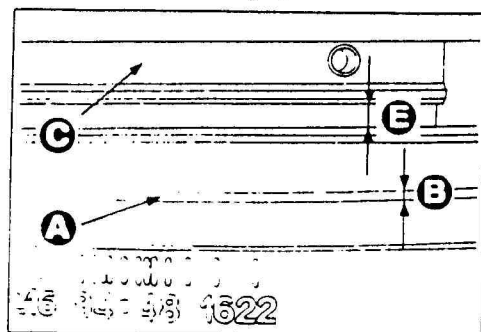


Fig.2

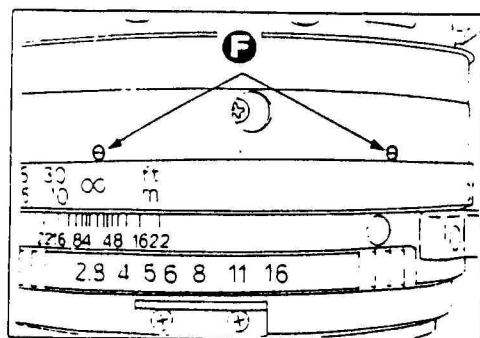


Fig.3

We show the assembling position of the helicoid, which was removed for repairing.

1. Turn clockwise the intermediate helicoid (A) up till its maximum, and turn back counterclockwise a little (about a half turn). Fit it to the position that the clearance (B) becomes about 0.3 mm. (0.5 mm For 150 mm LENS) (See Fig. 2.)
2. When the part (D) of the inner helicoid (C) for installing the shutter is brought to fit to the relative position as shown in the drawing (Fig. 1), the inner helicoid (C) shall be assembled so that the clearance (E) will become 1.0 mm. (1.5 mm For 150 mm LENS) (See Figs. 1 and 2.)

Note : 1) The relative positions and the dimensional-clearances of the lens A55 • 80 mm are in common.

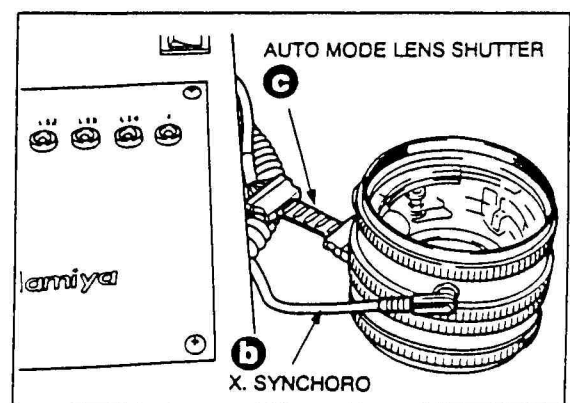
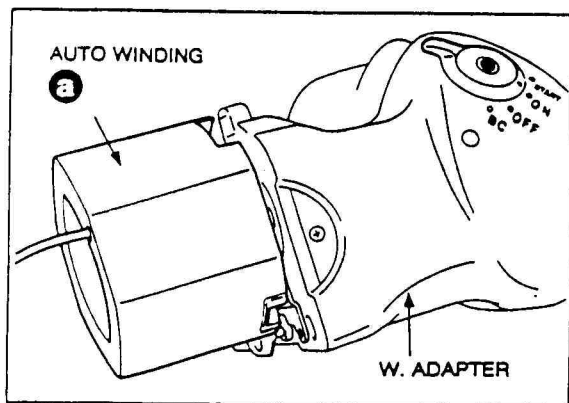
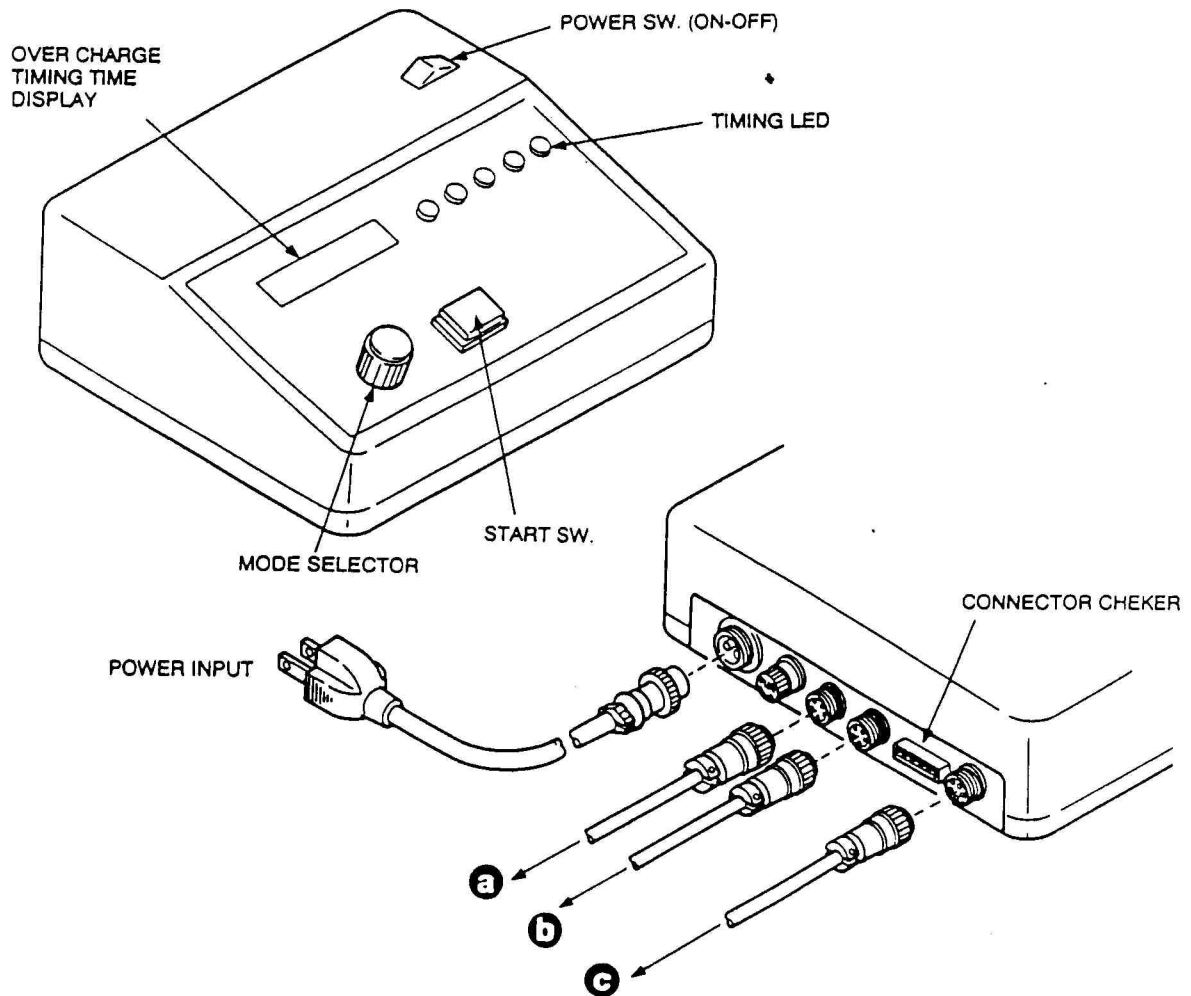
	For 55/80 mm	For 150 mm
(B)	0.3 mm	0.5 mm
(E)	1.0 mm	1.5 mm

[A. ADJUSTMENT]

1. For adjusting the infinity of lens, loosen 6 set-screws (G) which fasten the range ring, and adjust by sliding the height of helicoid. (See Fig. 3.)

Note : 1) After adjusting, tighten the set-screws so as not to allow irregular rotation of the range ring.

Functions of the standard camera body 645 PRO are built-in this LENS SHUTTER TIMING TESTER (TOOL NO.Y02-003), and this tester can be used for functional check and adjustment of the lens shutter, and winder grip.



Remarks

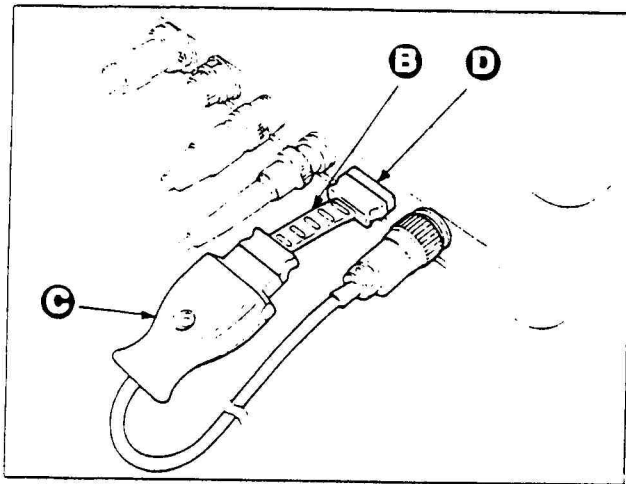


Fig. 2

1. Set the mode selector knob (A) at "CHECK".
(See Fig. 1.)
2. Connect the grip connector (B) to the socket (C) and the lens shutter timing tester socket (D).
(See Fig. 2.)

3. Press the start button (E).

- ① If connection of the grip connector (B) is good, the words "CONNECT GOOD" appear in the display (F). (See Figs. 1 and 2.)

CONNECT GOOD (F)

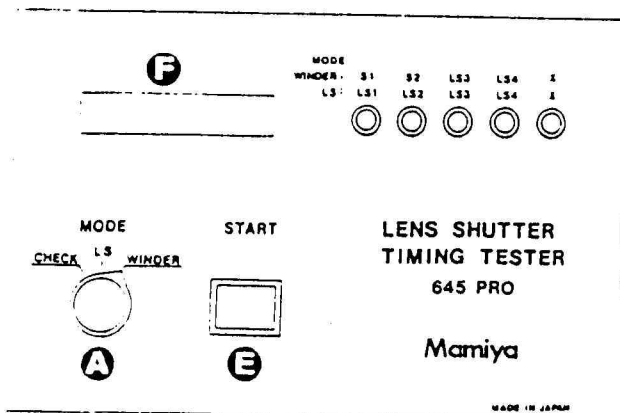


Fig. 1

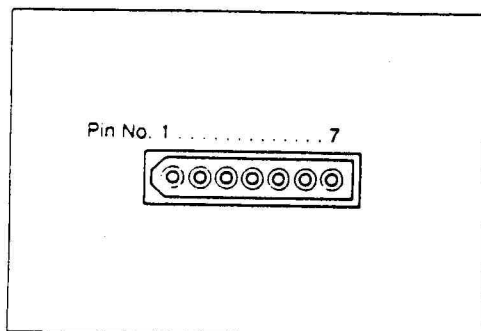


Fig. 3

- ② If there were disconnections in the grip connector, the places of disconnection are displayed with "0". (See Figs. 1 and 2.)

NG → 0000000 (F)

Example : If pin No.2 is disconnected, it displays as follows:

NG → 1011111 (F)

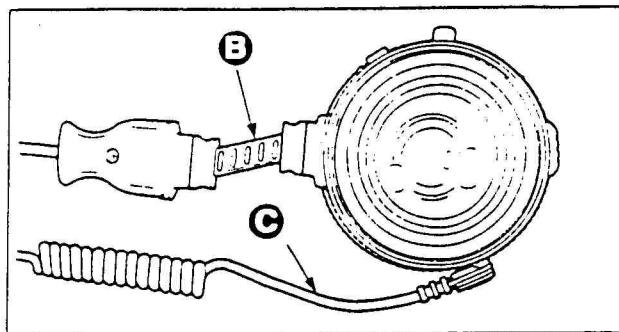


Fig. 2

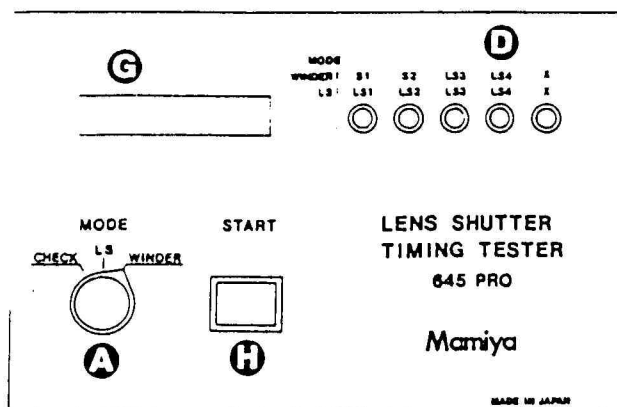


Fig. 1

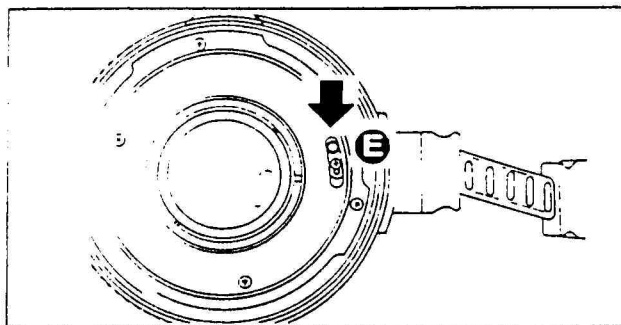


Fig. 3

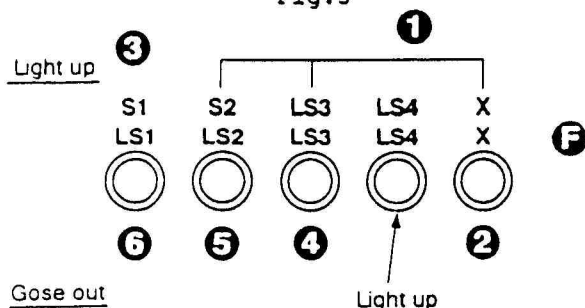


Fig. 4

1. Set the mode selector knob (A) at the "LS".
(See Fig. 1.)
2. Charge the shutter of the lens for inspection.
Connect the grip connector (B) and the synchro cord (C) to the tester. (See Fig. 2.)
3. When the shutter speed ring is changed from the "F" to lens shutter mode (30-500), the LED LS4 (D) lights up. (See Fig. 1.)

4. Set the shutter speed at an optional one, and release the shutter (E). (See Fig. 3.)
5. At the same time when the shutter is released, the LED (F) lights up and goes out in the order of numerical figures shown in small circles, and the shutter is charged automatically. (See Fig. 1.)

At this time, in the display (G) the second of the S3 timing is shown. (See Fig. 1.)

TIME : $3 \pm 2\text{ms}$

Note : 1) In case that the synchro cord (C) is not connected to the tester, the shutter cannot be charged automatically.
(Therefore, the LED LS2, LS3, and LS4 light up.) Press the START button (H) and charge the shutter. (Manual charging is possible.) (See Fig. 1.)

Note : 2) While the LED LS2 and LS3 are being lighted up, it is indicated that the shutter is not charged.

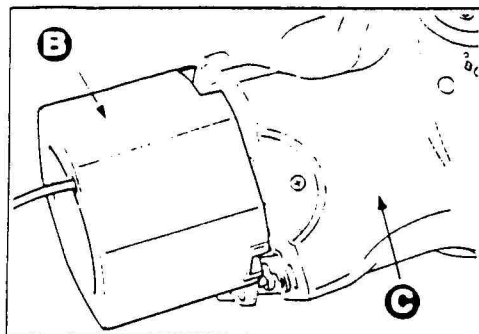


Fig. 2

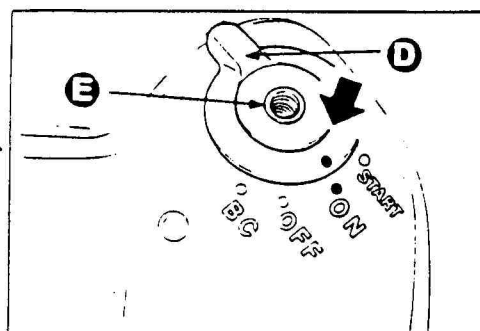


Fig. 3

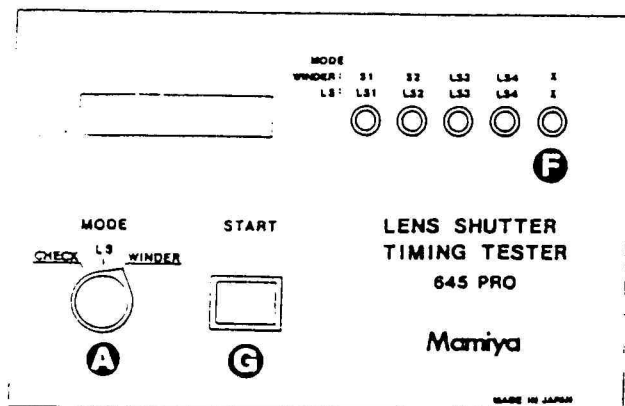


Fig. 1

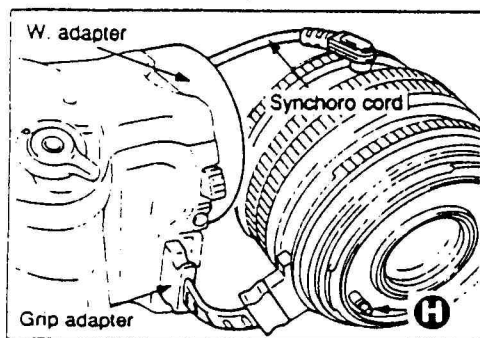


Fig. 4

1. Set the mode selector knob (A) at "WINDER".
(See Fig. 1.)
2. Fit the winder adapter (B) to the winder grip (C).
(See Fig. 2.)
3. Set the winder grip select lever (D) at "ON".
(See Fig. 3.)

- ① When the release button (E) is half pressed,
LED S1 = lights up.
- ② When the release button is turned "ON",
LED S1• S2 = light up

4. When the "START" button (G) is pressed, the
winder grip coupler rotates.

If the "START" button is being pressed continuously, the rotation stops after counting 250 pulses (3 to 4 seconds).

5. As shown in Fig. 4, when the lens shutter is
connected and the lens shutter is released H, the
LED LS4 × (E) lights up and goes out. Then the
lens shutter will be charged by the signal of winder
grip.

645 PRO

5 LENS (A55•80•150 mm N/L)

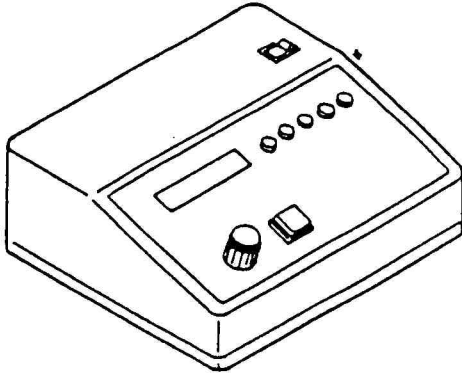
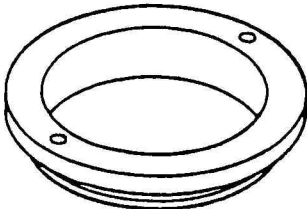
4 TOOLS

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SPECIAL INSTRUMENT AND HAND TOOLS

1/1

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TOOL NO.	DESCRIPTION	SKETCH	REMARKS
Y02-003	Lens Shutter Timing Tester		
Y02-004	Stop Ring		For A55, 80 and 150 mm N/L adjusting shutter ring.

Remarks

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AUG.